

CLAIMS:

1. A method of manufacturing a reflector (450) for a reflective or transfective liquid crystal display device (400), comprising the steps of
 - providing a layer (100) comprising a mixture including a photo-diffusible monomer (102);
 - selectively irradiating said mixture in accordance with a first pattern for developing a
 - 5 photo-embossed structure in said layer (100);
 - cross-linking said mixture and
 - providing at least selected surface portions of the photo-embossed layer with a reflective material (154).
- 10 2. A method as claimed in claim 1, wherein the mixture further includes a polymer (104).
3. A method as claimed in claim 1, wherein the photo-diffusional monomer (102) is a monomer that contains at least one polymerizable group forming a cross-linked polymer
- 15 network after polymerization.
4. A method as claimed in claim 1, wherein the mixture further comprises a thermal initiator for thermally cross-linking photo-diffusible monomer remaining at least in a non-irradiated area of the layer after the irradiating step.
- 20 5. A method as claimed in claim 1, further comprising the step of heating the mixture after the irradiating step, for enhancing the photo-embossed structure at an elevated temperature.
- 25 6. A method as claimed in claim 5, wherein the elevated temperature is at least 60 degrees Celsius.
7. A method as claimed in claim 4 and 6, wherein the elevated temperature is about 130 degrees Celsius.

8. A method as claimed in claim 1 or 2, wherein the photo-diffusible monomer (102) and/or the polymer (104) is an acrylate compound.
- 5 9. A method as claimed in claim 1, wherein the mixture is irradiated through a first patterned mask (110).
10. A method as claimed in claim 1, wherein the mixture is irradiated by means of holographic exposure.
- 10 11. A method as claimed in claim 1, wherein the method further comprises a step of selectively irradiating the layer in accordance with a second pattern.
12. A method as claimed in claim 11, wherein the mixture is irradiated through a second patterned mask after being irradiated through the first patterned mask.
- 15 13. A method as claimed in claim 9 or 12, wherein the first patterned mask or the second patterned mask comprises a grey scale pattern (712, 714).
- 20 14. A method as claimed in claim 9 or 12, wherein the first patterned mask or the second patterned mask comprises a non-periodic and/or non-symmetric pattern.
15. A method as claimed in claim 1, wherein the step of providing the reflective material further comprises depositing vaporized metal particles on the selected surface portions of the layer.
- 25 16. A method as claimed in claim 15, wherein the metal particles are deposited at a grazing angle with respect to an outer surface of the substrate.
- 30 17. A method as claimed in claim 1, wherein the step of providing the reflective material further comprises
- providing a solution including reflective flakes (320) and
 - evaporating said solution, thereby leaving said reflective flakes (320) randomly dispersed on the selected surface portions of the cross-linked layer (300).

18. A reflective or transflective LCD device (400), comprising
a cell (430) between a front substrate (432) and a rear substrate (434), said cell including an
active layer of a liquid crystalline material, and a reflector (450) for reflecting ambient light
5 modulated by said active layer towards a viewer,
wherein said reflector (450) has a polymer surface (452) being provided with a surface relief
by means of a photo-embossing process, and at least part of said polymer surface (452) is
provided with a reflective material (454).
- 10 19. A reflective or transflective LCD device as claimed in claim 18, wherein the
surface relief (652) comprises a ridge structure including first (657) and second (658) sloping
surface portions.
20. A transflective LCD device as claimed in claim 19, wherein the reflective
15 material (654) is provided on said first sloping surface portions (657), and the second sloping
surface portions (658) essentially define an opening (656) for passing light from a backlight
(660).
21. A transflective LCD device as claimed in claim 18, wherein the surface relief
20 substantially defines a difference in cell gap between reflective and transmissive portions of
the cell, the reflective material substantially being provided on a part of the surface
corresponding to said reflective portions.